

PUBLIC HEALTH ACT

(11 & 12 Vict. Cap. 63.)

REPORT

TO THE

GENERAL BOARD OF HEALTH

ON A

PRELIMINARY INQUIRY

INTO THE SEWERAGE, DRAINAGE, AND SUPPLY OF
WATER, AND THE SANITARY CONDITION
OF THE INHABITANTS

OF THE TOWNSHIP OF

B A I L D O N,

IN THE COUNTY OF YORK.

BY WILLIAM LEE, Esq., C.E.,

SUPERINTENDING INSPECTOR.



LONDON :

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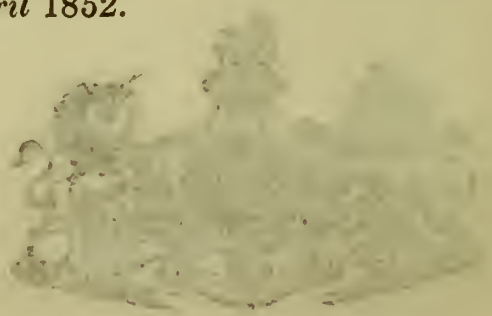
NOTIFICATION.

THE General Board of Health hereby give notice, in terms of section 9th of the Public Health Act, that on or before the 22d day of May next, being a period of not less than one month from the date of the publication and deposit hereof, written statements may be forwarded to the Board with respect to any matter contained in or omitted from the accompanying Report on a preliminary Inquiry into the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants of the Township of BAILDON, in the County of York; or with respect to any amendment to be proposed therein.

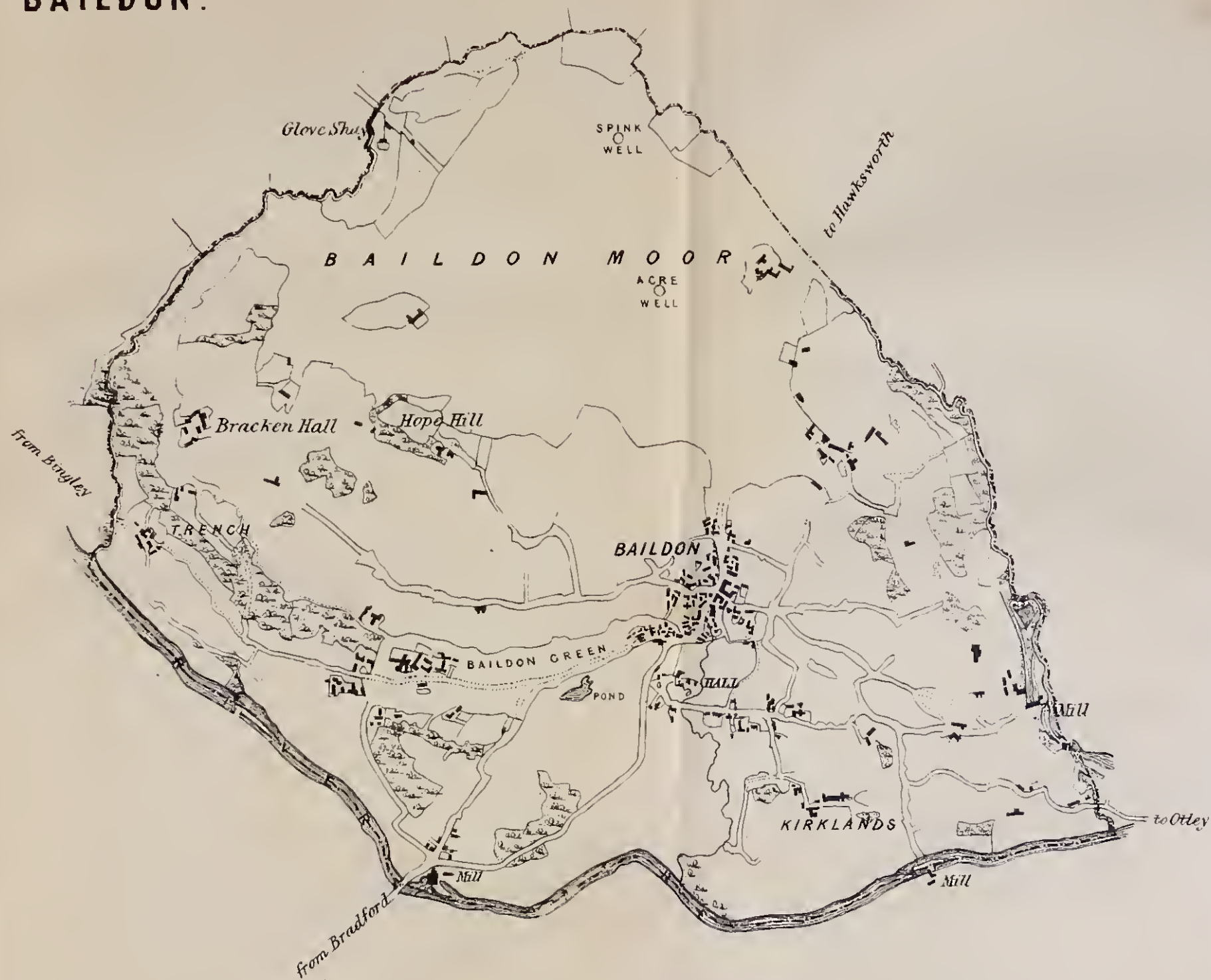
By order of the Board,

HENRY AUSTIN, *Secretary.*

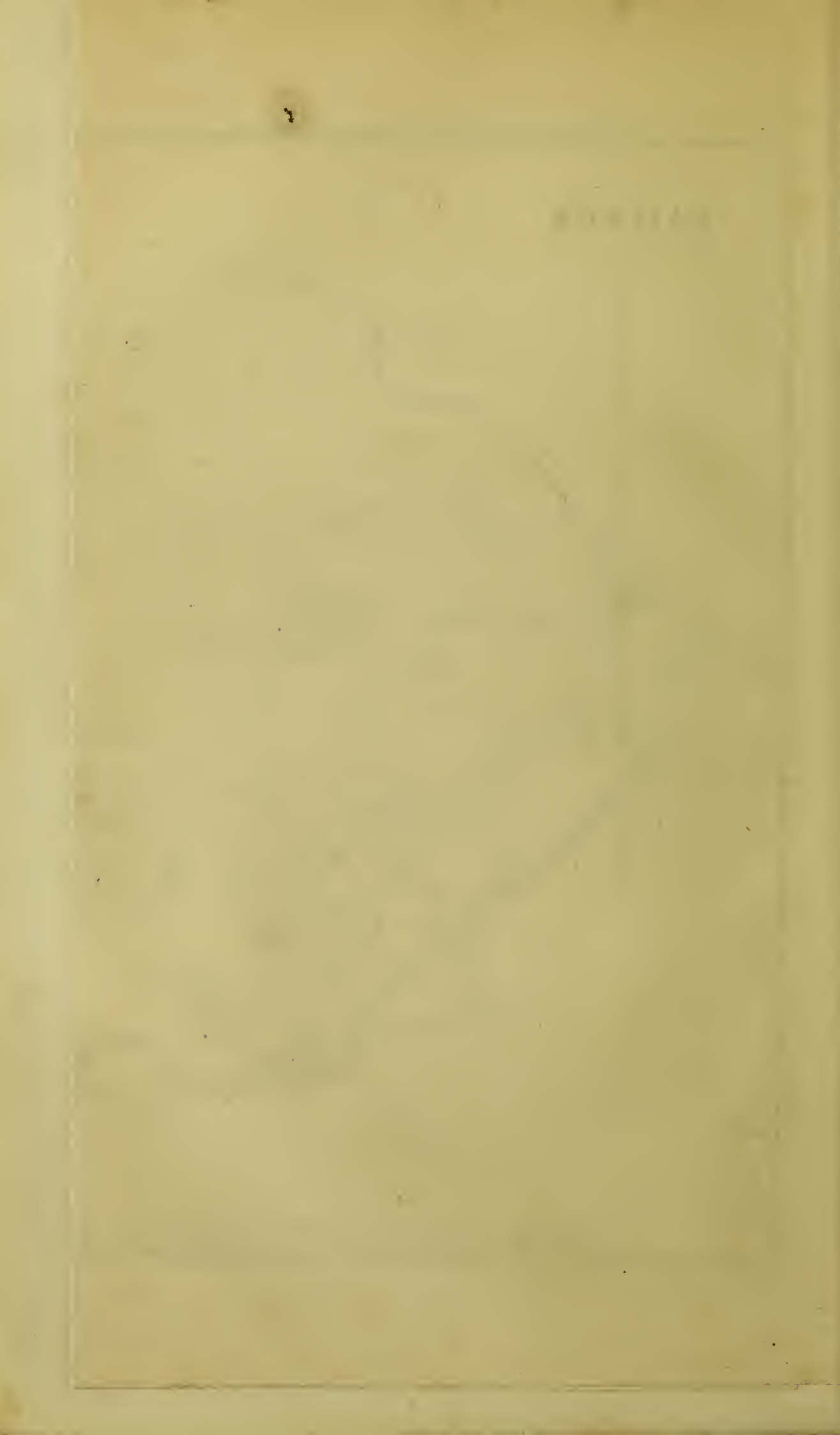
Whitehall, 6th April 1852.



BAILDON.



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PUBLIC HEALTH ACT (11 & 12 VICT. c. 63.)

Report to the General Board of Health on a Preliminary Inquiry into the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants of the Township of BAILDON, in the West Riding of the County of York. By WILLIAM LEE, Esq., Superintending Inspector.

9, Duke Street, Westminster,
September 30, 1851.

MY LORDS AND GENTLEMEN,

A PETITION having been presented to you from the inhabitants of Baildon, you were pleased to direct me to make an Inquiry into the sanitary condition of that Township, and to report to you in writing the result of such inquiry.

The following is the purport of the petition, upon which the inquiry was based :—

“ Whereas by the Public Health Act, 1848, it is enacted, that from time to time after the passing of that Act, upon the petition of not less than one tenth of the inhabitants rated to the relief of the poor of any city, town, borough, parish, or place, having a known or defined boundary, &c., &c. Now therefore, we the undersigned inhabitants of the township of Baildon, in the parish of Otley, in the county of York, and rated to the relief of the poor of and within that township, and being one tenth in number of the inhabitants rated to the relief of the poor of and within the same township, do hereby petition the General Board of Health to direct a Superintending Inspector to visit the said township, and to make inquiry and examination with respect thereto, with a view to the application of the said Act according to the provisions of the said Act in that behalf.

(Signed) JOSEPH MITTON, Incumbent.”
(And 108 others.)

At the opening of the inquiry, in the Wesleyan Upper School-room, Baildon, at 10 o'clock on the morning of Wednesday, the 26th day of February last, copies of the newspapers usually circulated within the district, and containing the advertisement of the inquiry, were put in. The Rev. J. Mitton, incumbent, proved that a notice had

been affixed on the church-door. Mr. Joseph Farnish proved that he affixed a copy of the same on the door of the Primitive Methodist chapel. Mr. Richard Bell proved that he affixed one on the Moravian chapel-door, and also on the most public place in the village. Mr. William Midgley proved that he affixed the notice on the Wesleyan chapel-door. These included all the churches, chapels, and places where public notices were usually affixed.

During the inquiry William Burr, Esq., solicitor, steward to the Lord of the Manor, asked to see the petition. He said his object was to ascertain who the petitioners were. I read the petition, and stated that the number of the petitioners was 109, but declined to allow an examination of the signatures. I may inform your Honourable Board, however, that I took means to satisfy myself that the petition was valid, and found it to be signed by more than *one eighth* of the rated inhabitants. After I had explained to those present the objects of the inquiry, and the operation of the Act in a place like Baildon, I proceeded to inspect the township, and in this I was accompanied by the Rev. J. Mitton, incumbent; the Rev. George L. Herman, Moravian minister; Mr. William Waterhouse, Mr. John Harper Whitaker, Mr. Henry Hodgson, Mr. James Law, Mr. William Ives, churchwarden; Mr. John W. Ellison, assistant overseer, and a considerable number of other inhabitants.

DESCRIPTION.—Baildon is a township in the parish of Otley, in the Carlton Union (Gilbert's Act), in the west riding of the county of York. It is situate about three miles north of Bradford, and contains one large village, and several small hamlets or clusters of buildings. The village itself is divided into Upper and Lower Baildon; and to the south of it is the populous suburb of Baildon Green. Tong Park is a collection of, at present, about 12 houses a mile south-east of Baildon. Gill's Mill is about three quarters of a mile east of Baildon. There are two mills there shut up, and at the time of my inquiry all the houses, about 30 in number, were empty. New Line or Charles Town is about a mile south of Baildon, and contains from 30 to 40 houses. Moorside is about three quarters of a mile north of Baildon, and contains about 20 houses. Low-Hill is about a mile north of Baildon, and contains about 16 houses.

PHYSICAL GEOGRAPHY AND GEOLOGY.—Baildon is situated on the west side of the valley of the Aire, but at a considerable distance from the river. The present site of the village must at one time have been a lofty precipice. I

can scarcely conceive a more romantic place than this must have been in a state of nature. Between the lower part of the town and Baildon Green, is now a lofty and perpendicular rock, from whence several springs of water gush. The principal entrance to Baildon rises rapidly up a broken escarpment of this rock, so that the upper houses are from 100 to 150 feet above the lower. Through the centre of the village there is a deep ravine, down which a beautiful stream of water once flowed. There is now a cascade of from 30 to 40 feet of foul sewage water. Previous to the habitation of man, no fluid would have remained upon any part of the surface of the site of Baildon. It required something more than mere neglect,—a more culpable ingenuity,—to surround the dwellings of such a place with filth, manure, and ordure, in a state of stagnation and decomposition.

From all parts of the village the scenery is extensive and beautiful. The situation is well adapted for the most perfect drainage. Above the houses is a fine open moor of many hundreds of acres, from whence the prevalent wind comes pure and bracing; and, to sum up, in a few words, I do not think I have visited any place combining physical circumstances more favourable to health and longevity.

The geological position of Baildon is the junction of the coal measures and the mill-stone grit. This will account for the great difference in the quality of waters from the numerous springs herein-after mentioned. Those from the coal measures are hard and ferruginous, while those from the gritstone are soft and pure. These waters ooze out of the rock almost everywhere, requiring only a trough or dipping-hole to obtain it. Some of these springs, however, are polluted with drainage; others are unfit for use; all are inconvenient; and the most so, are those affording the best water. With abundance as to quantity therefore, the inhabitants suffer great deprivation.

Sandstone is almost exclusively used as a building material, and being found on the spot, is so cheap that a cottage, letting for 3*l.* 10*s.* per annum, would be completed for about 40*l.*

I could not ascertain that any meteorological observations have been taken in the neighbourhood, but I have little doubt the rain-fall would amount to 40 inches. The prevalent winds are westerly and south-westerly.

TRADE AVOCATIONS, &c.—Mr. *Henry Hodgson* said in his evidence,—

“The trade here is in worsted, and worsted and cotton stuffs. In the village of Baildon there are about 450 men, 250 women,

and 80 children of both sexes employed. The number of persons engaged as tailors, shoemakers, &c., and on the land, would be perhaps 50 men. In wool-combing heat is required, and a smell comes off the wool, but I do not think it is particularly injurious to health. Where heat is required the rooms may be ventilated. A considerable number of wool-combers work in their own houses. Except in combing alpaca there is no dust, and that forms a very small portion of the work done. I should not say that any of the trade occupations here are prejudicial to health."

As to the wages obtained by the artizans, I was informed that hand-loom weavers can earn about 8s. weekly; power-loom weavers about 9s.; wool-combers, 10s.; sorters, 14s. or 15s.; women about 8s.; children at full time, 4s.; and at half time, 2s.

LOCAL GOVERNMENT.—Mr. *Joseph Neal Thackery*, from the office of Messrs. Weatherhead and Burr, solicitors, of Bingley, and solicitors to the Lord of the Manor, was present at the inquiry, and said,—

"I am instructed to say that we have no reason to apprehend that William Maud, Esq., Lord of the Manor of Baildon, will oppose any necessary improvements in Baildon."

There is a Court Leet of the Manor, but I could not hear that it was a more efficient body for local management than similar courts elsewhere.

The overseers of the poor and the surveyors of the highways are the only civil functionaries at present capable of exercising any influence whatever on the sanitary condition of the place.

There is no Local Act of Parliament in force in Baildon, nor any watching or lighting of the village.

POPULATION, HOUSES, AND RATE OF INCREASE.—At the census of 1801, the population of the township of Baildon was 1,719; in 1811, 2,073; in 1821, 2,679; in 1831, 3,044; in 1841, 3,280; and in 1851, 3,008.

The number of houses in 1831 was 596; in 1841, 739; and at the time of my inquiry, 834.

The number of inhabitants per house therefore was 5.1, in 1831; in 1841 it was 4.43; and in 1851, 3.6.

I am indebted to Mr. John W. Ellison, assistant overseer, for the following classification of the rateable value of the houses in Baildon. The fact that three fourths of all the houses in the township are under the annual rateable value of 3*l.* shows that the greatest economy should be exercised in improving its sanitary condition.

CLASSIFICATION of the ANNUAL RATEABLE VALUE of the HOUSES
in the Township of BAILDON.

	Number of Houses.			
	Baildon.	The Green.	Lower Baildon, Back of Moor.	Total.
Under £3 - -	343	67	242	
£ 3 and under £ 4	20	3	6	
4 " 5	16	3	2	
5 " 6	4	1	1	
6 " 7	4	1	—	
7 " 8	8	1	—	
8 " 9	3	—	1	
9 " 10	7	1	2	
10 " 15	6	1	3	
15 " 20	10	3	4	
20 " 25	10	5	6	
25 " 30	4	4	4	
30 " 40	9	3	2	
40 " 50	2	4	2	
50 " 60	2	1	1	
60 " 70	2	—	2	
70 " 80	—	—	1	
80 " 90	1	—	1	
90 " 100	1	—	—	
100 and upwards -	2	—	2	
	454	98	282	834

DISEASE AND MORTALITY.—On this most important point I quote the evidence of *James Steele*, Esq., surgeon, who said,—

"I am the only resident medical practitioner in Baildon. I have been here 14 years. I am not medical officer of the union for this district; we have no such officer; I have the vaccination, nothing more. My long residence here has made me well acquainted with the sanitary condition of Baildon. Fever is very common, of a mixed kind, and so are diseases of the chest. This fever begins in a low form; in that state some are very obstinate cases; from the commencement to convalescence two or three weeks will elapse on the average. From 12 years old and upward, the number of cases may perhaps have been equal to those younger. In general terms persons begin to work here at 10 or 11 years old. Half the number of cases of fever have been among the producing classes. In some cases the fever goes on and assumes a more malignant type, that would be typhus fever; it affects generally all classes. I have had some fatal cases. In the recoveries about five or six weeks would elapse before persons would be able to work again, but a great many of the operatives have to begin working before they are in a fit state. I cannot call to mind more than two or three cases of relapse from such cause. I cannot say that I have

observed some parts of Baildon more exposed to this disease than other parts. I do not know that any of these cases of fever have taken the form of scarlet fever, but we have scarlet fever at present in the town. We frequently have dysentery ; that is sometimes in the lapsed cases of fever. The fever has twice been epidemic since I have lived here. I cannot at this moment recollect when the former of these epidemics took place. I believe that in 1826 typhus fever was very malignant in Baildon, but that was before I came here. The latter of the epidemic fevers since I came here was about 12 months ago. I cannot say what was the number of cases, but I know that there was a great number in Brow-gate. The epidemic continued raging about a month, and there were single cases afterward. I have attributed these fevers to want of cleanliness and want of more pure water. If Baildon had abundance of good water, and good drainage, I should expect to find some cases of fever, but not to the degree we have had it. I think the cases would be much fewer, and I think that such cases as did occur would be less malignant, unless the disease were imported into Baildon from some other place. Scarlet fever is only just beginning here, but it has been very bad in Bingley and other places. Besides, therefore, the diseases generated in Baildon, its present condition is such as to make it susceptible of diseases imported. I have known some few instances in which persons afflicted with these diseases have had to apply to the parish. In such cases there is no medical relief provided, as we are under Gilbert's Act. The poor people come to me, and I do the best I can for them, whether I ever get paid or not. There are sick societies in Baildon ; I am not connected with any of them as medical officer. I think they have no such officer. I believe that this is a question that affects the amount of poor rates. Wherever diseases of this kind exist they materially affect the well-being of any sick society.

"A good supply of water, and the removal of all offensive refuse would tend very much to improve the health of the inhabitants. I believe I was the first to mention the thing with regard to the water alone to the public ; and I did that from the conviction forced upon me by my experience as a medical man.

"Glandular enlargements, such as goitre, are rather common here. I attribute that disease to the hard impure water the people have been in the habit of drinking. I ascribe to the same cause the rather numerous cases of gravel."

Your Honourable Board will perceive, in the statement of Mr. Steele, another proof of the perfect identity of diseases arising from bad water and defective drainage. It is unnecessary that I should comment on the above important evidence. It is sufficient for me to add the name of this witness to the hundreds whose medical testimony has been laid before you by myself and colleagues ; all proving the enormous amount of sickness and death existing, the great extent to which disease is preventible, and the remedies—better drainage, abundance of good water, and pure air.

I have been favoured by Mr. W. Holmes, the district registrar, with some returns, from which I am able to deduce several important facts connected with the rates of mortality of the township.

It has been already shown that the population has decreased between the years 1841 and 1851. This decrease, amounting to 272 persons, is doubtless to some extent a consequence of the closing of Gill's mills, where 30 houses were all empty at the time of the inquiry.

I have allowed for the decrease of population in making the following calculations.

The first remark I would make is, that Baildon forms no exception to the fact that the rates of mortality have gradually increased in nearly all the places I have visited, large and small. This is the effect of the accumulative process of saturation going on in the sites of such places as are without proper drainage and other sanitary regulations.

In 1841 the deaths in the township of Baildon were 16·58 to 1,000 of the living population. In 1848 the proportion was 25·4 to 1,000 ; in 1849 it had reached the proportion of 26 to 1,000 ; in 1850 it was 24·93 ; and during the year ending 16th March 1851, notwithstanding all the exertions of poor law guardians and inspectors of nuisances, and the extra cleansings during the period of pestilence, the rate was still 20·21 to 1,000, or about 25 per cent. higher than in 1841.

In this last-mentioned period I find that the deaths from epidemic diseases alone were 1 in 215 of the whole population. Mr. Holmes informs me that the only register in his possession at the time of the inquiry was the one extending from March 1850 to March 1851, and therefore I am unable to compare the proportions of deaths at different ages with those at the same periods of life in other years. I find, however, that in that year the average age of all who died in Baildon was only 29 years, which is eight years below the average of the 61 whole registration districts quoted in my General Report on Disease and Mortality presented to your Honourable Board during the present year. This loss of eight years of life to every individual on the average is a most serious consideration, especially when taken in connexion with the fact that the year when this happened in Baildon was more healthy than any of the preceding three years.

Of those who survived to maturity, and may therefore be supposed to have possessed the strongest constitutions, the average age at death was 58 years. Compared with the

standard just named, this fact indicates a loss of upwards of two years to every adult who died in Baildon during that year.

It has been long established that the proportion of infantile deaths is one of the most unerring tests of the sanitary condition of a place, because infants are not affected, as adults are, by trade occupations, accidents, migration, &c., and are more affected by the condition of the atmosphere of the localities in which they live.

In the 61 registration districts already alluded to, containing above a million inhabitants, the proportion of deaths under 20 years of age to the total deaths was only 37 per cent.

In Baildon during the year ending 16th March 1851, the proportion of deaths under *one* year to the total deaths in the township was 32·8 per cent.; under *five* years, the proportion was 49·1 per cent.; under *fifteen* years, 65·5 per cent.; and under *twenty* years, 75·4 per cent. The infantile mortality was therefore at least double what it ought to have been; and in the continuance of such a state of things only *one fourth* of all the human beings born there would survive to years of maturity.

DRAINAGE, SEWERAGE, &c.—Under this head I purpose quoting a few extracts from the minutes of my inspection, and then giving such evidence as was laid before me at the inquiry.

I have already named a brook-course that passes through Baildon, and that it has been converted into a sewer. In West-gate it is covered over, with the exception of several places left open for the inhabitants to take the water for domestic use. At several of these places I examined it, and anything more disgusting could hardly be conceived. At the Town Cross the stream is reached by a flight of steps, walled on each side. The stream was unfit for anything but liquid manure; the stench was intolerable, and the steps covered with human ordure.

The ravine down which the drainage passes is called Celcliffe. At the opening of this the stream gushes with a considerable stench from under a house, and leaps over the rock probably 30 to 40 feet; it then passes down an open channel, with occasional pools, and realizes the almost inconceivable fact of a bad drainage with an inclination of nearly 45 degrees. The sides of the ravine are partially cultivated as garden ground, and are also intersected with pathways to several spring wells. In addition to these, there are some filthy privies; and it seems, by the innumerable

deposits of ordure, to be a general resort for those who have not the convenience of a privy. Instead of being the most attractive feature of Baildon, this Celcliffe is made a nuisance and a disgrace to the inhabitants.

The drainage of Lower Baildon and of the Green is not better than that of the town. It runs, with few exceptions, either along the surface or remains stagnant in the vicinity of the houses.

Mr. *John Ellison* says in his evidence,—

“The surveyor considers the public drains as being under his charge for any purpose of repairs. The drains are all formed of stone, with flat bottoms, dry rubble sides, and flat covers. No lime is used in forming them.”

Mr. *William Waterhouse* said,—

“I know something of the drains in the town. North-gate Brook drain is 3 feet wide, 2 feet 6 inches high, and the covers (10 to 12 inches thick) are level with the surface. There is a nuisance drain in the same street, 2 feet high inside, 1 foot 8 inches wide, and 3 feet 4 inches deep. West-gate main drain is 2 feet square inside, and 2 feet 10 inches deep. The covers act as a causeway. There is also one in part of Brow-gate 2 feet 6 inches high, 3 feet wide, and about 5 feet deep. I do not know of any other drains.

“At times, but not very often, deposits take place in these drains. There is generally a stream of water running down them. Baildon is not very well drained. There have not been any drains made for many years. The underground drains go under some of the houses. The general practice is to bring the slops to the doors, and pour them into a hole or opening in the drain. Many have not even a hole at the door, but throw it on the surface.”

From this evidence it will be seen how very imperfect the public drainage of Baildon is, both as to the materials used, the form, depth, and the limited extent of even the accommodation afforded by such drains.

No sort of house drainage, good or bad, exists in Baildon.

SUBURBAN LAND DRAINAGE AND TILLAGE AS AFFECTING THE SANITARY CONDITION OF THE INHABITANTS.—From the description already given of the contour of the district, it may be inferred that artificial drainage of the land is only very partially required; and that only with reference to agricultural improvement. I ascertained, on inquiry, that some land had been recently drained with tiles, laid 2 feet 6 inches deep, and 21 feet apart. The tiles cost 30s. per thousand, and the cutting, laying, and filling, 9d. per rood

for the mains, and 6*d.* per rood for the ordinary size. The total cost was about 5*l.* per acre.

Below the Celcliffe ravine the polluted stream, already spoken of, passes through some meadows, where it is used by Mr. Garnett, of Baildon Hall, and one or two others, for irrigation. The operation has been going on 30 or 40 years. Mr. Garnett has about 10 acres under irrigation. A second crop of grass can be eaten eight weeks after mowing. This land lets at 4*l.* per acre. The rent would be 2*l.* per acre without the irrigation.

With such an example of the fertilising properties of sewage-water, the inhabitants of Baildon cannot doubt that under a proper system of drainage, the refuse of the houses, privies, stables, &c. might be turned to profitable account in reduction of the public rates.

PRESENT WATER SUPPLY.—The bad quality of the greater part of the well water, and the difficulty and cost of obtaining any that was fit for dietary purposes, has been the chief inducement to the inhabitants in seeking for the application of the Public Health Act. On this account the evidence as to the present water supply is more voluminous than it would otherwise have been. I feel it right also to inform your Honourable Board that this is a popular movement in Baildon. The working people and the poor feel the want of good water, and they have a disposition to obtain a proper supply, convinced that it would be an actual saving to them if economical works were constructed. On this account I shall feel it my duty to recommend a lower qualification for the members of the Local Board of Health than has perhaps been adopted in any other instance, in order that those who have the will to improve the sanitary condition of the place may also have the power in their own hands.

At Binn's-well I found the water so turbid that I could only see into it about eight inches deep.

The Bubbling-well is so ferruginous that cattle will not drink the water.

The water supplying Old Ike-well previously runs in an open channel through the penfold, which is used every week. The stream fails in summer.

At Mr. Schofield's property, near Prospect mill, there is a public well under a house. It receives drainage, and is very foul where the water is taken.

Far-well is about 60 yards beyond the houses, and is an open land drain coming from a spring in the fields above. I found its course poached with cattle, and the ground and herbage dyed red with ferruginous deposit near its source.

The water is at all times very hard, but the most so when clearest; after rain it is muddy. I was informed that a large portion of the people in the upper part of the town have to come to this well.

Mrs. *Margaret Hutton* said,—

“Last night I came for some water at dark, and there was a frog and a lizard in it. One of the neighbours fetched some, and had some meal put in and drank, and next morning found there was a toad in it.”

West-gate Lane-spout is a clear stream about $1\frac{1}{2}$ inches diameter, but very hard. It is used for all purposes, but not for washing clothes when any other can be got.

Great-well in Celcliffe has a stream of about an inch diameter, but it is said to be polluted by a drain above, and the people who come here have to carry the water up a steep hill.

Washing-well and Little-well are both in the same ravine, and the water very hard.

A cart is employed to fetch water from a pure spring on the Moor, about three fourths of a mile distant, and the precious fluid is sold at a halfpenny for three or four gallons.

Abraham-well is good water, but it is below the town several hundred yards, and all the water has to be carried up hill. Many come to this place, notwithstanding the great labour required.

At Baildon Green all the houses, about 60, obtain water from one well, at an average distance of about 150 yards. The water would run to them at the trifling cost of an earthenware pipe.

At Lower Baildon I found soft water tubs elevated above the ground at several of the houses, and near Miss Lambert's, at a distance of about 150 yards from the houses, there is a tap connected with a spring. The inhabitants of Lower Baildon have access to the tap. The only additional dependence for water is a trough used for slopping.

The outlying hamlets are supplied by spring wells.

The Rev. J. Mitton said, that he used to live near the church, and that in dry weather, water cost him as much as 6*d.* per day.

Mr. *Henry Hodgson* examined, said,—

“I have resided in Baildon about three years. I have interested myself as to the manner in which Baildon is supplied with water. The supply is derived at present from wells, mostly in the town; and numerous. I think the water of all the wells in the town may be pronounced hard, but of different degrees. I consider

there are some so hard as to be unfit for use. There are other causes that render the water unfit for use, besides the natural hardness. Either one or more of the wells down Celcliffe receive the foul matter thrown out of the houses. I think this comes from a drain finding its way into the wells. Far-well, at the upper end of the town, is very hard when there is no flood in dry weather, but when there is much rain the surface water for some distance flows in, and carries with it decomposing animal and vegetable matter, so as to make it unfit for use. So that at one time it is too hard from mineral impurity, and at another it has a great deal of organic impurity in it. A very considerable number of the inhabitants fetch their water from that place. Notwithstanding these disadvantages, it is allowed to be better than some other waters in Baildon. The Lane-spout water, at the top of West-gate, is so hard that it is impossible to get a lather with it. Below the village, on the way to the Green, there is a small well called Abraham-well, in which the water is good, but the quantity is small,—the distance great,—and the water has to be carried up hill to the village. Notwithstanding these disadvantages, persons go from the bottom part of the town, and in some instances higher up, to fetch water.

“Water is fetched from the Acre-well on the Moor in a large barrel in a cart, and is sold to the inhabitants at one halfpenny per pail or canfull of, say four gallons. There are persons who buy it regularly. It is a general thing in Brow-gate. From the information I obtained when going about with the petition for this inquiry, the people generally buy seven to eight canfulls per week for a cottage house, or a poor man’s family. That would make $3\frac{1}{2}d.$ or $4d.$ per week for water. They keep this for food and washing, and still have to fetch water from the other wells for cleansing and common purposes. There would be at least an equal quantity so fetched from the most convenient place. I should think the mean distance would be about 150 yards. There is not much waiting or gossiping at the wells, but certainly the water could not be fetched and carried for so little as $1d.$ a week. A few have private pumps, and as far as I know the water of those pumps is extremely hard. Some few individuals have tubs to catch the rain-water from the roofs. I am not aware of many. I have known them cost 10s. ; they would be on the ground. If raised up with a pipe and tap, they would cost about 25s. each ; with about $8d.$ per annum for paint, they will last many years. The private well and pump would cost, on the average, say 50*l.* The water from Acre-well and Spring-well is very good indeed ; incomparably better than any water in the town, except Abraham-well.

“As to a comparison of the waters for washing clothes, my wife says, that for our family of five persons, the difference between Acre-well water, and Far-well water, in the consumption of soap for one week’s washing, is from $2d.$ to $2\frac{1}{2}d.$, exclusive of the extra time occupied, the extra trouble, and the additional wear and tear in the articles. The soap used with Far-well water for one week’s washing is $5\frac{1}{2}d.$, and from Acre-well $3d.$ The clothes are also a much better colour when washed with Acre-well water.

“I am manager of the weaving department at Clapham and Whitaker’s worsted-spinning and stuff-weaving mills. They have a great deal of wool-washing with soap, and they use the Far-well water for that purpose. A large quantity of soap is used in washing wool. The cost of that article to the firm is 7*l.* 18*s.* 4*d.* weekly, or 411*l.* 12*s.* 3*d.* per annum ; and therefore, if they could have a softer water for such purpose the saving would be very considerable.

“Some little of the water has been boiled, and consequently softened. If for this, we were to make the same proportionate allowance as above, for washing powder, the saving in a year would be about 176*l.* 8*s.* 2*d.* The saving in the operation of wool-washing in the remainder of Baildon would be an equal amount in addition or more.

“Mr. Jeremiah Ambler also uses soap for the same purpose, and if he could get a softer water, it would be a considerable saving to him. There is also a wash-house, called the Town wash-house, belonging to the Lord of the Manor, where the wool-combers, who are mostly poor men residing in the town, go to wash wool. The Great-well is 10 yards off, and the water is hard. They have not to find soap, but if the water was softer it would improve the colour of the wool, and make it work better. The workman works by the piece, and he would be able to complete his work sooner, and consequently would earn more money. There are instances in which people find themselves damaged in health by using this hard water. In one instance, a man and his wife have said, that after using Lane-spout water for a week, they had much difficulty in the evacuation of urine ; but by using Acre-well water they found relief, and the difficulty removed. Another instance is that of a man, who often uses Far-well water ; he sometimes finds himself in a similar condition. On one occasion he stated he had become so bad as only to be able to pass a few drops at a time, and with much pain. He knew the reason, and one day took a walk up to the Acre-well, and drank three times heartily of that water, and in ten minutes afterwards was able to evacuate quite freely, and the urine clear, and almost colourless.

“There are some instances in which poor persons have paid as much as 10*d.* and 1*s.* per week for water. They have large families, and live where water is difficult to come at, and therefore buy all they use. They also bake oat-cakes. Those who take in washing for hire are obliged to buy a large quantity of water. The large tin cans used for carrying water cost when new 2*s.* 6*d.* each. They are generally painted, and with care will last ten years ; they would cost about 4½*d.* each per annum in repairs.”

This evidence is very clear and important. It shows the bad quality of most of the water ; the inconvenience and difficulty of obtaining it ; its great cost, even to the poor ; the pecuniary loss from using hard water in domestic arrangements, and for manufacturing purposes ; and the prejudicial effect of its use upon the health of the inhabitants.

CONSTRUCTION AND CONDITION OF DWELLING HOUSES AND THEIR APPURTENANCES.—The following evidence illustrates what has been already said as to the abundance of building stone, and the very steep contour of the village.

Mr. *William Waterhouse* said in his evidence,—

“A house that would let for 3*l.* 10*s.* rental might be built for about 40*l.* Building materials are very abundant here, and cheap. Bricks are very little used ; nor are tiles, except for draining. In most houses there are underground cellars, and they are generally dry.

“In some places, houses will be two or three stories high on one side, and only one story high on the other. I should think not one tenth of the people live in floors one above another, and where several families live under the same roof their houses form distinct tenements.”

The last fact named by the witness is very striking to a stranger. These houses have no staircases, or internal passages, but the great rise of the ground enables each floor to have a distinct external entrance, and in fact to be a distinct cottage. The rent of two rooms of this kind would be 3*l.* to 3*l.* 10*s.* per annum.

I have already named the indecent appearance of the surface of Baildon, from the deposits of human ordure to be found almost everywhere. Remarking on this during the inspection, I was informed by Mr. Whitaker that there was probably not more than one privy to 25 houses in all the town. In this respect I know of no place with which it can be compared except Bacup in Lancashire, and the following evidence shows that a similar degradation of the social and moral condition of the inhabitants is the consequence.

The Rev. *J. Mitton* said in evidence,—

“I have been incumbent of Baildon rather more than two years. I should say with respect to the moral and social condition of the inhabitants that the outside appearance of things is a tolerable emblem of their state. I may say with perfect safety that a large majority of the people do not attend any place of worship. Gambling has been, and I fear still is, a very prevalent vice among the young men. With respect to illegitimate births, I think that they are greatly beyond the average of places, and that open adultery is a very prevalent sin here.

“The privy conveniences are defective as to number and condition, and I can have no doubt that this conduces to indecent habits. In the streets the necessities of nature are obeyed, and that even by adults. I cannot have any doubt whatever that better drainage, and a better supply of water would have a very beneficial and moral influence on the people ; but it would also be very conducive to morals if a Local Board of Health had power to cause proper privies to be constructed, and kept in a clean condition.

“ When I first came to Baildon, I used to attach great blame to the people for many of these nuisances, but I think that the great want of accommodation in that way is almost an apology for the evil so far as the poor themselves are concerned.”

The Rev. *Geo. L. Herman*, Moravian minister, said,---

“ I have not been here 12 months yet, and know very little of my own experience, but as far as that extends I am able to concur with what Mr. Mitton has said. With respect to illegitimacy, I have not only been struck with it, but with the absence of any disgrace attending it.”

Such undoubtedly are among the demoralizing consequences of inability to attend with decency the peremptory offices of nature. That which is at first shrunk from with shame and indignation, is submitted to because necessity knows no law ; repetition familiarises the mind with the most disgusting habits, and that which destroys sexual delicacy among young men and young women, opens the door, at the same time, to the indulgence of sensual appetites. During the inspection of Baildon, when a number of the inhabitants were with me on one side of the ravine called Celcliffe, there was a young female apparently about 16 years of age so occupied, in the middle of the day, in a small exposed garden on the opposite side. The horizontal distance from us to her would not be more than 40 to 50 feet, and there was a man digging in another garden, within half that distance.

ROADS AND SURFACE CLEANSING.—Mr. *John Ellison* gives so full an account of the reparation and cost of the public highways in the township that I at once quote his evidence,—

“ I am assistant overseer, and keep the books of Mr. John Brayshaw, the surveyor of the highways. The total length of the public highways, including turnpikes, is about $8\frac{1}{4}$ miles. One turnpike road is called the new line to Otley from Bradford, and is two miles long in Baildon. It is repaired entirely by the township. Another is a turnpike road from Baildon to Hawksworth, with a length of about $2\frac{1}{4}$ miles in the township, and it is also repaired entirely by the township. These two turnpikes make up one half of our public roads ; there is no toll-bar in the township.

“ The materials for repairing the roads are got within the township ; there is a quarry for calliard at the Green. The site of the quarry is part of the common ; the stone is got at 2s. 8d. per day. The leading is by the day ; the breaking down to $2\frac{1}{2}$ inches diameter, 1s. 3d. per cubic yard. We use no other materials for the carriageways ; we get flags for the causeways from the gritstone above the calliard, and from the same place any stone for drains. The gritstone has to be paid for, because the quarry is rented from the Lord of the Manor.

"The surveyors keep one man regularly employed, but sometimes three or four; there is not much done in the way of cleansing the roads; they are only scraped for purposes of repair, and not for sanitary purposes; the road-sand is sold to iron works at 1s. 6d. per load; the purchaser leads it four miles or more.

"The annual amount in the pound levied for the reparation of the highways varies, but for the last three years has been respectively 1s. 8d., 6d., and 1s. 2d. A rate of 6d. in the pound will amount to 110*l.* 9*s.* 3½*d.* From that would have to be deducted empty and excused rates, which would amount to about 18*l.* 10*s.*"

According to the abstracts of account, afterwards put in by Mr. Ellison, it appears that the average expenditure of the three years is 220*l.* 18*s.* 1*d.*

The public carriageways are kept in good repair, so far as my inspection enabled me to judge, but I did not observe any side channels. The footways are capable of considerable improvement, without the necessity of any large expenditure. There are several private roads in a very bad state of repair, the worst is Tenter-croft belonging to Thomas Hollins, Esq.; the upper part was five or six inches deep of mud.

One of the greatest evils in Baildon is the condition of the court-yards and back premises of houses. There is rarely any pretension to pavement, and the accumulations of filth are quite sufficient to account for the fevers, &c. described in the evidence of Mr. Steele.

In West-gate there was a large quantity of liquid manure running out of the yard belonging to Mr. Thomas Walker. It stood in pools on the side of the road close to Mrs. Ruth Hall's door. The surface for about 12 feet square was saturated with it.

In Tenter-croft there is a privy without any ashpit; the night-soil lying in heaps, and no pavement in the road or court. In Butler's Hall yard, Goldsborough's yard, Mr. Jonathan Walker's yard, and Mr. Geo. Taylor's yard, all adjacent to each other, there were large accumulations of filth, litter, and manure, without either pavement or drainage. In Taylor's yard the manure belongs to William Marshall, and the drainage from it goes under a house, the tenant of which intends to leave unless the nuisance be removed. In Thomas Hutton's yard, and John Smith's yard there are similar nuisances, and no pavement or drainage. At Hill Cliffe, the property of Mr. F. Walker has very bad drainage,—no pavement except at the doors, and no channel for the foul water of the houses.

Many piggeries were complained of as nuisances, from the filthy condition in which they are kept. There is also a very objectionable practice of making large manure heaps adjoining the public roads. The walls are built of rubble stone

with open joints, and the fluid filth oozes through, and runs along the road. This ought by all means to be put a stop to.

STATE OF THE BURIAL GROUNDS.—There have been several additions to the churchyard; the last has been very little used. There is only one house actually adjoining the churchyard, and no houses on the same side as the new part. The soil is dry, and very suitable for the decomposition of bodies.

Mr. *Mitton*, the incumbent, says,—

“The entire churchyard at present is half an acre. The original ground contained 1,550 square yards; an addition of 620 yards was made about 20 years since; and another addition two years since of 250 yards. The average number of interments for the last 20 years is 69 and a fraction; but there are many still-born children buried without coming into the book.”

This burial-ground is at the margin of the village; and, taking all the circumstances into consideration, I do not think it should be interfered with at present.

The Moravian burial-ground is more in the centre of the village, but it is very little used. Within a few yards from one side there are houses, the roofs of which are scarcely higher than the gravestones; on the other side there are no buildings. Very few graves contain more than one body.

Mr. *Herman* put in a statement, of which the following is a copy:—

“The first interment in the Moravian burial-ground was in the year 1816; the last, in December 1850, was the 220th. The average is therefore $6\frac{1}{2}$ per annum.

“Until the year 1845, persons attendant on our public services were permitted, if they desired it, to make use of the burial-ground. Since that time the ground has been reserved for members only, except in very peculiar cases. The present average number of annual interments is consequently less; in 1850 there were four only.

“Unless the grave be a bricked vault, it is usually limited to one interment.

“The area of the ground, 38 yards by 13 yards, is 494 square yards.

“More than half of the persons buried in our burial-ground have been children.

“Application was lately made to the owner of the land adjoining to purchase a piece of ground, but the negotiation was interrupted by his death. The present owner will be applied to as soon as possible.”

If additional ground be obtained, separated from the houses by the old ground, and the interments be restricted to the members and congregation, I think this burial-ground may safely be allowed to remain open for future interments.

There are no interments at the Wesleyan chapel ground.

REMEDIES.

PUBLIC HEALTH ACT BENEFICIAL.—It has been shown that the public drainage of Baildon is very inefficient, and very inadequate; and that private, or house drainage, has no existence; that the surface of court-yards and private property is mostly unpaved, and frequently saturated with filth; that the privy conveniences are frequently very foul, and so few in number as to lead inevitably to habits of the grossest indecency; that the means of obtaining water are very inconvenient, involving much labour, the cost great, and the quality mostly bad; that, consequent upon all these, the inhabitants suffer much from preventible disease; and that there is no local authority with powers to remedy any such evils.

The application of the Public Health Act would enable the inhabitants to elect from among themselves a Local Board, with adequate powers of a remedial nature; and I cannot doubt that its provisions, economically carried out, would prove a great blessing to the township.

I may here add, that I have not visited any place of small size, where the position and contour of the district are more favourable, or where the necessary works can be completed at a less cost than in Baildon.

IMPROVED WATER SUPPLY.—I have already stated, under the head "Present Water Supply," that good water is brought from Acre-well on the Moor to the villages in a cart, and sold to the inhabitants in pails. It has also been satisfactorily proved by experience that this water is salubrious.

It was stated that the Moor belongs to all the freeholders, and that, if enclosed, the Lord of the Manor would take one sixteenth; and after that, an additional relative proportion, along with the other freeholders, according to the quantity of their enclosed lands in the township. There is no reason, therefore, to apprehend any legal difficulty in obtaining the water.

Acre-well is about five furlongs from the nearest houses in Baildon, and at a sufficient altitude to supply in the manner required by the Public Health Act. The stream bubbles up from the sandstone rock, very bright, and without any appearance of mineral impurity. I should judge it to be only eight or ten degrees of hardness, but had no means of ascertaining the fact. At the time of my visit, the flow was about equal to a pipe of $3\frac{1}{2}$ inches diameter on the

level, but I was informed that in summer it becomes less. At that season more water is required, and I should fear the supply would then be deficient. The best means of augmenting the quantity therefore becomes an important consideration. Two methods present themselves :—

1. There is another spring on the same Moor, called Spink-well, but at a distance of about a mile from the nearest houses in Baildon. The water is of the same quality as that at Acre-well; the flow about the same, and the fall to the village about 30 feet. To conduct the stream of the Spink-well to the Acre-well would double the quantity, and afford a very adequate supply at all times, without the expense of constructing reservoirs larger than sufficient to keep the ends of the main pipes constantly covered.

2. A drift-way a short distance into the rock at Acre-well would most probably open out the spring there, and increase the volume sufficiently to render any resort to Spink-well at present unnecessary. The cost of such drift-way would be so trifling, a few pounds only, and the probable saving of nearly 800 yards of main-pipe is so desirable, that in any case I should recommend that means be taken to increase the flow of Acre-well. Spink-well might still be made accessory, if necessary, or might remain as a reserve to be used if the population should outgrow the supply.

The fall not being so great as to exert much pressure, I should recommend the conveyance of the water, until it reaches the village, in well-made earthenware pipes. Another suggestion is, that if these earthenware pipes were laid down of somewhat larger diameter than was necessary for mere conveyance, the whole line of pipe would form a covered reservoir, in which the water would be kept cool and refreshing for use. This is important, when we consider that the flowing of the springs during 24 hours would be mainly consumed by the inhabitants between the hours of nine in the morning and two in the afternoon.

Having now got the water to the village, I would distribute it by cast-iron street mains, and place a wrought-iron service pipe and a tap upon the sinkstone of every tenement. The length of street pipes in the town would be about seven eighths of a mile, and for Lower Baildon about half a mile. I should advise that arrangements be made to supply both Upper and Lower Baildon. How much further the pipes should extend will be for the consideration of the Local Board.

If the money for constructing the works be borrowed on security of the rates, and repaid in a period not exceeding

30 years, I have no hesitation in saying that during that period the greater part of the houses may have constant supplies of good water at a price not exceeding 1*d.* per house per week; and that the largest houses need not exceed the sum of 2*d.* per house per week. At the expiration of thirty years, when all the money shall have been repaid, no charge need be made except for any necessary repairs.

IMPROVED DRAINAGE.—Having brought to the houses and other premises a plentiful supply of water, proper channels must be constructed to convey it away, after it has served the purposes of the inhabitants; and to remove along with it all refuse capable of being removed by the action of water. It is by means of drainage, and systematic cleansing of the surface, that the sanitary condition of Baildon must be improved. Without proper drainage and cleansing, the accession of a large quantity of water would aggravate some of the evils now existing, because water promotes the decomposition of animal and vegetable refuse. Proper drainage would remove these matters before decomposition had taken place.

All the drains should be earthenware pipes, commencing with about four inches diameter at the houses and courts. At the upper end of the streets the diameter would be about six inches. The largest pipe at the lower end of the town, containing the collected refuse of all the houses, need not be more than nine inches diameter. Additional privies would doubtless require to be erected; and they, as well as the present privies, should have water-taps and drains to remove the soil away at once from the premises. All stables, outhouses, sinkstones, courts, and other places producing refuse that may be injurious, should have pipe communications with the drains, and every communication should be trapped. A cheap soil-pan with trap for privies may be had for about 7*s.* 6*d.*, and the present disgusting sights prevented.

This drainage, with payments distributed over 30 years, as already indicated for water, may be effected so as to incur a charge of only about 1*d.* per house per week. Where new privies are needed of course there would be an additional charge upon the owner of the property, but it is an imperative duty upon every owner that his tenants should have the means of decency at their disposal, and the obligation is not weakened by past neglect.

I have already stated that the experience of the meadows irrigated by Celcliffe brook proves the great value of the liquid sewage water. I have only to add that the natural

features of the district are so favourable that no mechanical power would be required in its application. The land below the town would be capable of receiving it with advantage. I have little doubt that the demand would be great; and as this valuable fertiliser is produced by the ratepayers, it would be proper to make its application a source of public revenue.

PAVEMENTS AND SURFACE CLEANSING.—The surveyors of the highways have now only jurisdiction over the public roads, and that only as a matter of reparation, and not for any purposes connected with health. A Local Board of Health, however, would not only be able to keep the highways clean and free from such nuisances as are now either upon or contiguous to them, but would also have the power to cause the court-yards and other back premises to be kept in a proper state, both as to paving and cleanliness; to cause the removal of all nuisances, and to prevent the accumulation of litter, filth, and dung.

I have only touched upon a few of the more prominent duties that would devolve upon the Local Board. They would have to perform many other important duties; and if your Honourable Board should think the Act ought to be applied, I trust that the inhabitants will not stop short of a proper water supply, drainage, pavement, and surface cleansing, because I am convinced that all these improvements may be so efficiently and yet so economically carried out in the district, as to effect a pecuniary saving even to the poorest inhabitant of Baildon, when compared with the cost of the present arrangements.

NATURE AND EXTENT OF RATES.—The Local Board would have to levy a *general district rate*, which would include any expenses connected with the meetings of the Local Board, and its management, such as the collection of rates, stationery, &c. Out of the same rate they would have to pay for any survey or plans for the works, and also to repay to the Government in five annual instalments the expense of applying the Act. This rate would very little exceed the amount heretofore collected as highway rates.

A highway rate would be collected by the Local Board as has been done heretofore by the surveyors.

The *special district rates* would include such works as the *public part* of the drainage works, and would be levied only upon the property benefitted by the expenditure. Land or buildings not benefitted would be exempt from the rate.

Water rate to be paid by the premises supplied with water, and by them only.

Private improvement rates to be levied upon each property separately for its own improvements, so that no man can be charged for the improvement of his neighbour's property, but only for his own. Thus if a man's property should require a new privy or pavement, this outlay and the cost of water-service pipes and drains upon the premises, could be included in the money borrowed by the Local Board of Health. The equal instalments to repay the amount in 30 years would be called a private improvement rate. It will be obvious that this would be a great boon to many to whom it might be inconvenient to pay down at once the amount required for such improvements as were desirable and necessary.

CONCLUSIONS AND RECOMMENDATIONS.

It is now my duty to sum up briefly the conclusions and recommendations to which I have come upon this inquiry :—

I. That there is a considerable amount of preventible disease and mortality in the township of Baildon.

II. That the trade avocations of the inhabitants are not calculated to affect the general mortality; and that the contour and other natural features of the district are highly favourable to a good sanitary condition.

III. That there are no arrangements whatever having reference to the health of the people.

IV. That the quality of the water generally used by the inhabitants is very unsuitable for dietetic purposes; that the drainage is very defective; the privy arrangements very inadequate; and the accumulations of unremoved decomposing animal and vegetable matter in the vicinity of the houses so large and numerous, as to form, with the evils already enumerated, sufficient causes for the excessive disease.

V. That the more prominent improvements, of the nature of public works, may be effected at the following rates for a cottage house :—

1. Constant supplies of good water, with a tap on the sinkstone, at 1*d.* per week.

2. An efficient system of drainage, including the houses, courts, and privies, at 1*d.* per week.

3. Pavement, and cleansing of courts, and private places, at 1*d.* per week.

VI. That all these advantages could be secured upon the principle of distributed charges for less than the present real cost of water alone.

VII. That the liquid sewage might be applied with great facility to the agricultural land in a more systematic manner than heretofore, and without necessity for mechanical power.

VIII. That inasmuch as the sewage manure is public property, its great fertilising qualities ought not to be appropriated by any private individual, without its equivalent value being paid to the Local Board of Health in reduction of the public rates.

WHEREUPON I RECOMMEND—

1. That the Public Health Act, 1848, except the section numbered 50 in the copies of that Act printed by Her Majesty's printers, be applied to the township of Baildon, in the parish of Otley, in the west riding of the county of York.

2. That the Local Board of Health to be elected under the said Public Health Act, shall consist of nine persons, and that the entire number shall be elected for the whole of the said district.

3. That the first election of the said Local Board of Health shall take place on a day to be named in the Order in Council for applying the said Act.

4. That one third in number of the said Local Board shall go out of office on the 25th day of March in each year, subsequently to that in which the said first election shall take place.

5. That every person shall, at the time of his election as a member of the said Local Board, and so long as he shall continue in office by virtue of such election, be resident as in the said Public Health Act, 1848, is required; and shall be seised and possessed of real or personal estate, or both, to the value or amount of not less than 300*l.*; or, shall be so resident, and rated to the relief of the poor of the said township upon an annual value of not less than 6*l.*

I have the honour to be,

My Lords and Gentlemen,

Your very obedient Servant,

WILLIAM LEE,

Superintending Inspector.

The General Board of Health,

&c.

&c.

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